Commonwealth of Kentucky
Division for Air Quality

EXECUTIVE SUMMARY

TITLE V REVISION (PROPOSED PERMIT) NO. V-05-089R1
MARATHON PETROLEUM COMPANY, LLC
CATLETTSBURG REFINING, LLC
PO. BOX 1492
CATLETTSBURG, KY
DATE: JUNE 1, 2007
SUKHENDU K MAJUMDAR, REVIEWER
SOURCE I.D. #21-019-00004
SOURCE AI # 339
ACTIVITY # APE 20060005/20060008/20070004

SOURCE DESCRIPTION:

A significant revision application for the installation of three (3) new package boilers, emission units B024, B025, B026 (2-601-B-13, 14, 15) at Catlettsburg Refining, LLC was received on May 15, 2006. As part of the project, seven (7) existing in-service older boilers will be removed and will be replaced with three (3) new large boilers. Each new boiler will have a maximum heat input capacity of 249.9mmBtu/hr. This permit is the revision to proposed initial permit V-05-089, issued on March 30, 2007. Permit conditions for the 3 new boilers have the same general requirements as the existing No. 5 Package Boiler, emission unit B013 (1-009-B-588). Specific requirements have been added for the 3 new boilers to preclude PSD.

Two minor revision applications were received by the Division on April 11, 2007 and May 11, 2007 for installation of a Stranded Gas Compressor and Consolidated River Logistic Project, respectively. These minor revisions are now included in the proposed permit.

Marathon Petroleum Company at the Catlettsburg Refining, LLC (CRLLC) processes petroleum crude oil to produce gasoline, diesel fuel, kerosene, and jet fuel and petroleum derivatives such as petro-chemicals and lube oil feed stock. Besides the crude oil processing units, the refinery has boilers, sulfur plants, and waste water treatment. Raw crude, refined petroleum products and intermediates are stored in the storage tanks for distribution and further processing.

The refinery at Catlettsburg uses the Big Sandy River to transport domestic crude oil and product distribution in barges. Besides the river transportation, there are railroad tank cars, truck loading, and unloading facilities at different areas of the refinery used for efficient movement of transportation fuels, lube oil feed stock and petrochemicals. Viney Branch transfer racks are provided with a Vapor Recovery Unit (VRU) to absorb volatile organic compounds (VOC) in the activated carbon during loading operation. Activated carbon is regenerated by vacuum by using vacuum pump and the vapor is condensed to recover the hydrocarbon liquid. The vapor recovery system has an absorption and regeneration cycle. VOCs are controlled during solvent loading in the trucks and rail cars by use of the Vapor Destruction Unit (VDU) to reduce the air emissions.

The light gases produced during the processing of the crude oil are used by the refinery sweet fuel

gas system after being treated with amines. The refinery fuel gas is used for process heaters, steam generating boilers, flares and incinerators. Amines are regenerated for recycling. Amine regenerator off-gas along with foul water stripper off-gas from the wastewater treatment area, are directed to the sulfur plant. The sulfur plant produces metallic sulfur in the Claus reactors and reduces the sulfur dioxide (SO2) emission from refinery. Some of the heaters and boilers at the refinery are provided with low nitrogen oxide (NO2) burners to reduce NOx emissions to the ambient air.

The refinery has one Fluidized Catalytic Cracking (FCC) unit, two Catalytic Cracking Reformer (CCR) units, and one HF Alkylation unit to produce and improve the Research (RON) and Motor (MON) octane, for the three grades of gasoline distributed in the pumps. The CRLLC has a Lube Oil Complex to produce Lube Feed stock. Lube crude is processed in the #5 crude unit, and the lube vacuum unit makes the 100N and 325N waxy distillate. Waxy distillates are further treated in the Furfural Extraction unit and MEK De-waxing units to produce salable lube feedstock.

The CRLLC also manufactures petrochemicals such as cumene, solvents and other products to be further processed in the chemical industry. Some of the aromatics are also produced in the petrochemical area such as benzene, toluene, xylene, and naphthalene. The refinery brings in Coal Tar Light Oil (CTLO) from the coal industry to meet the demand of benzene in the manufacture of cumene. Light liquid from the reformers and distilled liquids from the CTLO are separated in the Sulfolane Unit liquid-liquid extraction process to produce benzene, toluene and xylene.

The refinery has two independent waste water systems: Oily water sewer system and NESHAP regulated waste water system. The NESHAP water is being collected in collection pits through out the refinery process units and pumped to a storage tank. Water from the storage tank, before going to the common treatment facility, is being treated in the Benzene Recovery Unit (BRU).

PUBLIC AND AFFECTED STATE REVIEW:

On April 20, 2007, the public notice on availability of the draft permit and supporting material for comments by persons affected by the plant was published in *The Daily Independent* in Ashland, Kentucky. The public comment period expired on May 20, 2007, 30 days from the date of publication.

Comments received

No comments were received to the Division during the thirty-day response period. Therefore, the Division has made a final determination to issue a proposed permit. The proposed permit will become final upon approval of the EPA in 45 days.